

WHAT IS CLAIMED IS:

1. A semiconductor processing apparatus, comprising:  
a vibration applying unit attached to a wafer mounting electrode and applying vibration to a wafer mounted on said electrode;  
a vibration detecting unit attached to the wafer mounting electrode and  
5 detecting vibration induced at the wafer mounted on said electrode; and  
a determining unit determining presence/absence of sticking of said wafer based on the vibration detected by said vibration detecting unit.
2. The semiconductor processing apparatus according to claim 1, wherein said vibration applying unit applies the vibration to the wafer mounted on said electrode while changing a frequency of the vibration over time.
3. The semiconductor processing apparatus according to claim 1, wherein said determining unit determines the presence/absence of the sticking of said wafer based on a waveform of said detected vibration.
4. The semiconductor processing apparatus according to claim 1, wherein said determining unit determines the presence/absence of the sticking of said wafer based on a waveform of the vibration applied by said vibration applying unit and a waveform of said detected vibration.
5. The semiconductor processing apparatus according to claim 1, wherein said determining unit determines the presence/absence of the sticking of said wafer based on a difference between a waveform of the vibration applied by said vibration applying unit and a waveform of said detected vibration.

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6. The semiconductor processing apparatus according to claim 1, wherein said determining unit determines the presence/absence of the sticking of said wafer based on a difference in at least one of vibration intensity, frequency and phase between a waveform of the vibration applied by said vibration applying unit and a waveform of said detected vibration.

7. The semiconductor processing apparatus according to claim 1, wherein a frequency of the vibration induced at the wafer mounted on said electrode and detected by said vibration detecting unit is a natural frequency of said wafer.

8. The semiconductor processing apparatus according to claim 1, wherein said vibration applying unit and said vibration detecting unit are configured with a single module.

9. The semiconductor processing apparatus according to claim 1, wherein said vibration applying unit applies pulse vibration to the wafer mounted on said electrode.

10. The semiconductor processing apparatus according to claim 9, wherein the pulse vibration is generated at a duty ratio of no more than 50%.

11. The semiconductor processing apparatus according to claim 1, wherein said vibration applying unit applies the vibration having a frequency of no less than 120 Hz to the wafer mounted on said electrode.

12. The semiconductor processing apparatus according to claim 1, further comprising an output unit outputting an alarm when said determining unit determines that the sticking is present.

13. The semiconductor processing apparatus according to claim 1, further comprising a stop unit stopping the semiconductor processing when said determining unit determines that the sticking is present.

14. The semiconductor processing apparatus according to claim 1, further comprising a communication unit sending sticking information to a host computer when said determining unit determines that the sticking is present.

15. The semiconductor processing apparatus according to claim 1, further comprising a processing unit for cancellation of sticking when said determining unit determines that the sticking is present.

16. The semiconductor processing apparatus according to claim 15, wherein said processing unit includes a mechanical structure for cancellation of said sticking.

17. The semiconductor processing apparatus according to claim 15, wherein said processing unit includes a structure supplying a gas for cancellation of said sticking.

18. The semiconductor processing apparatus according to claim 15, wherein said processing unit includes a structure generating plasma for cancellation of said sticking.

19. The semiconductor processing apparatus according to claim 15, wherein said processing unit includes at least two structures out of

- a mechanical structure for cancellation of said sticking,
- a structure supplying a gas for cancellation of said sticking, and
- a structure generating plasma for cancellation of said sticking.

20. The semiconductor processing apparatus according to claim 16, further comprising a control unit controlling said processing unit to perform sticking cancellation processing for a predetermined number of times.